

1 In the claims:

2 1. A method for concurrently acquiring, processing, and transmitting digital video

3 and still images, comprising:

4 acquiring video frames from one or more image sensors;

5 processing the video frames using a video pipeline, wherein the video pipeline

6 includes one or more processors;

7 temporarily storing the video frames in a frame buffer when one or more high

8 resolution still images are acquired during the video frame acquisition; and

9 processing the high resolution still images using a still image pipeline, wherein the

10 still image pipeline runs concurrently with the video pipeline.

11 2. The method of claim 1, wherein the processing the video frames step comprises:

12 downsampling and demosaicing the video frames; and

13 color correcting the video frames.

14 3. The method of claim 1, wherein the processing the high resolution still images step

15 comprises:

16 downsampling and demosaicing the high resolution still images using complex

17 demosaicing algorithms; and

18 color correcting the high resolution still images using complex color correction

19 algorithms.

20 4. The method of claim 1, further comprising compressing the video frames and the

21 high resolution still images.

22 5. The method of claim 1, further comprising transmitting the video frames and the

23 high resolution still images through communications channels.

24 6. The method of claim 1, further comprising storing the video frames and high

25 resolution still images in a storage device.

26 7. The method of claim 1, further comprising emptying the frame buffer by the

27 processors after the high resolution still images are processed, transmitted or stored.

28 8. The method of claim 1, wherein the processing the high resolution still images

29 step includes processing the high resolution still images using the same image sensors and

30 the same processors in the video pipeline.

31 9. The method of claim 1, wherein the processing the video frames step and the

32 processing the high resolution still images step include processing the video frames and

33 the high resolution still images using separate hardware processing pipelines.

1    10. A concurrent dual video and still image pipeline for a video camera system,  
2    comprising:

3                 one or more image sensors capable of acquiring video frames and high resolution  
4    still images, wherein the high resolution still images are acquired during the video frame  
5    acquisition;

6                 a sensor controller capable of storing the video frames into a memory;

7                 one or more processors capable of concurrently processing the video frames and  
8    the high resolution still images, wherein the video frames are processed using a video  
9    pipeline, and the high resolution still images are processed using a still image pipeline,  
10   and wherein the video pipeline runs concurrently with the still image pipeline;

11                a frame buffer capable of temporarily storing the video frames when the high  
12   resolution still images are being processed.

13   11. The concurrent dual video and still image pipeline of claim 10, further comprising  
14   a storage device capable of storing the video frames and the high resolution still images.

15   12. The concurrent dual video and still image pipeline of claim 10, further comprising  
16   an input/output unit capable of transmitting the video frames and the high resolution still  
17   images through communications channels.

18   13. The concurrent dual video and still image pipeline of claim 10, wherein the frame  
19   buffer is emptied after the high resolution still images are processed, transmitted or  
20   stored.

21   14. The concurrent dual video and still image pipeline of claim 10, wherein the  
22   processors are selected from a microprocessor, an application specific integrated circuit  
23   (ASIC), and a digital signal processor.

24   15. The concurrent dual video and still image pipeline of claim 10, wherein the  
25   processors downsample, demosaic, and color correct the video frames.

26   16. The concurrent dual video and still image pipeline of claim 10, wherein the  
27   processors downsample, demosaic, and color correct the high resolution still images using  
28   complex algorithms.

29   17. The concurrent dual video and still image pipeline of claim 10, wherein the video  
30   pipeline and the still image pipeline use the same image sensors and the same processors.

31   18. The concurrent dual video and still image pipeline of claim 10, wherein the video  
32   pipeline and the still image pipeline use separate image sensors and separate hardware  
33   processing pipelines.

1       19.     The concurrent dual video and still image pipeline of claim 10, wherein the video  
2     pipeline and the still image pipeline use the same image sensors and separate hardware  
3     processing pipelines.

4       20.     A computer readable medium providing instructions for concurrently acquiring,  
5     processing, and transmitting digital video and high resolution still images, the instructions  
6     comprising:

7              acquiring video frames from one or more image sensors;  
8              processing the video frames using a video pipeline, wherein the video pipeline  
9     includes one or more processors;  
10             temporarily storing the video frames in a frame buffer when one or more high  
11     resolution still images are acquired during the video frame acquisition; and  
12             processing the high resolution still images using a still image pipeline, wherein the  
13     still image pipeline runs concurrently with the video pipeline.